REMARKS/ARGUMENTS

Claims 1-18, 21, 23-48 are pending. No claims have been amended. Reexamination and reconsideration are respectfully requested.

Rejections under 35 U.S.C. § 102

Claims 1, 2, and 7 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by U.S. Patent No. 5,716,366, issued to Yates. Claims 1-7, 9-18, 21, 23, 24, 24, 26, 27, 29-45, and 47 have been rejected under 35 U.S.C. §102(e) as being allegedly anticipated by U.S. Patent No. 6,179,835 to Panescu et al. in view of Picha and Pacific Silk. Such rejections are traversed as follows.

Independent claim 1 is directed to a working end of an electrosurgical probe for delivering energy to tissue. Claim 1 recites, in part, a solid variable electrical resistive body. The body provides low resistance electrical current paths from an interior conductor portion of the body when the body is at a first temperature, and the body displays increased resistance electrical current paths when the body is at a selected higher temperature. The low resistance electrical current paths allow the interior conducting portion to cause ohmic heating of the tissue.

In regards to the rejection under Yates, the Examiner does not point to any evidence in the cited reference for teaching or suggesting a working end of an electrosurgical probe having a variable electrical resistive body that provides low resistance electrical current paths that allow an interior conducting portion to cause ohmic heating of the tissue. A single cited art reference must teach each and every element of the claim to establish anticipation under 35 U.S.C. §102. M.P.E.P. §2131. As applicants understand the reference, Yates discloses a hemostatic surgical instrument having a positive temperature coefficient (PTC) material that has an electrical impedance that increases with an increase in temperature. Col. 3, lines 50-64. Yates however, discloses use of the PTC material as a "heating element." Therefore, the PTC material in Yates must generally have a high resistance and therefore does not disclose low resistance electrical current paths as recited by claim 1. Furthermore, the PTC material disclosed

in Yates is used to heat tissue, rather than using separate opposing polarity conductor portions to cause ohmic heating of the tissue, as recited in claim 1.

In support of the rejection under Yates, page 2 of the Office Action merely states that "[t]hermally variable resistive material 39 is interior of thermal conductor 56, which is part of tissue engaging surface 33 (see column 3, lines 44-59 and Figure 16)." Applicants fail to see how the cited text , or any part of the Yates reference, discloses a variable electrical resistive body that provides low resistance electrical current paths to allow the interior conducting portion to cause ohmic heating of the tissue.

Nor does Panescu et al., teach the use of a solid variable electrical resistive body as recited in claim 1, Panescu et al. discloses an expandable electrode structure for diagnosis and treatment of cardiac conditions. Col. 1, lines 12-16. The Panescu device uses an inflation medium, such as water, saline, or air to expand the electrode structure. Col. 9, lines 38-49. Page 2 of the Office Action correctly notes that Panescu et al. teaches "a tissue contacting surface (elements 24) and a supporting body which can be made from silicone rubber." The Action further correctly notes that "Pacific Silk teaches that silicone rubber, with a resistivity as taught by Table 3 of Panescu et al. has a carbon density "in the range disclosed by the applicant" (i.e. about 12%).

Applicants, however, strongly disagree with the Examiner's conclusion that "Picha and Pacific Silk highlight the inherency of the claimed behaviors in the material disclosed by Panescu et al." While Panescu et al. describes use of an electrically conductive balloon co-extruded with carbon or other conductive components, nowhere is it discussed or taught that the materials should have a resistance which varies in response to a change in temperature. Indeed, Panescu et al. teaches against the use of materials which display conductivity decreases during use. See, col. 87, lines 61-68. And contrary to the Examiner's assertion, neither Pacific Silk nor Picha teach that the materials of Panescu et al. would inherently have such a temperature responsiveness. Pacific Silk teaches only that carbon-impregnated silicones will have a resistance which depends on carbon content, not temperature. Picha nowhere uses the word temperature in its text.

Applicants request, if the present rejection is maintained, that the Examiner show or explain where the cited art, or how knowledge of those skilled in the art, teaches or suggest the proposed limitations. See In re Zurko, 59 U.S.P.Q.2d 1693 (Fed. Cir. 2001) ([I]n a determination of patentability .... the Board cannot simply reach conclusions based on its own understanding or experience - or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of those findings).

Absent any cited teaching or suggestion of a variable electrical resistive body that provides low resistance electrical current paths to allow the interior conducting portion to cause ohmic heating of the tissue, a *prima facie* case of anticipation under 35 U.S.C. §102 has not been established, and as such claim 1, and dependent claims 2-15 are allowable.

Independent claim 16, is directed to a method for controlled application of energy to a targeted tissue. Claim 16 recites, among other elements, the step of providing a probe with a working end having a solid variable electrical resistive body. In particular, the probe has at least one interior conductor coupled to a voltage source, and the body provides low resistance electrical current paths at a first temperature. Claim 16 further recites delivering RF energy to or from said at least one interior conductor thereby causing ohmic heating in said tissue. As claim 16 recites all of the salient limitations of claim 1, claim 16 distinguishes the cited art for all the reasons discussed above. Hence, Applicants respectfully requests that rejections to claim 16 (and dependent claims 17-18) be removed, and that claims 16-18 be allowed.

Independent claim 21 is directed to a surgical probe for delivering energy to tissue. Claim 21 recites, among other elements, a body comprising an electrically non-conductive, solid material doped with an electrically conductive doping composition distributed therein to provide variable resistance. The body provides low resistance electrical current paths at a first temperature, and an interior electrode wherein the low resistance electrical current paths allow the interior electrode portion to cause ohmic heating of the tissue. As claim 21 recites all of the salient limitations of claim 1, claim 21 distinguishes the cited art for all the reasons discussed above. Therefore, Applicants respectfully requests that rejections to claim 21 (and dependent claims 23-34) be removed, and that claims 21, and 23-34 be allowed.

Independent claim 35 is directed to a surgical probe for delivering energy to tissue comprising a working end body with a solid material having resistance to electrical flow therethrough that varies substantially with pressure applied thereto. Claim 35 also recites an electrical conductor causing ohmic heating of the tissue. As claim 35 recites all of the salient limitations of claim 1, claim 35 distinguishes the cited art for all the reasons discussed above. Additionally, none of the cited references disclose a solid body that varies its resistance application of pressure. Therefore, Applicants respectfully requests that rejections to claim 35 (and dependent claims 36-42) be removed, and that claims 35-42 be allowed.

Independent claim 43 is directed to a surgical probe for delivering energy to tissue comprising a first body portion having a solid PTC material and a second body portion having a resistive heating element for causing current flow to ohmically heat tissue. As the cited art fails to teach apparatus having solid PTC materials to ohmically heat tissue, claim 43 distinguishes the cited art. Therefore, Applicants respectfully requests that rejections to claim 43 (and dependent claim 44) be removed, and that claims 43-44 be allowed.

Independent claim 45 is also directed to a surgical probe for delivering energy to tissue comprising a solid variable electrical resistance resistive body. As the cited art fails to teach means for varying the resistance of a material comprising the body portion, claim 45 distinguishes the cited art. Therefore, Applicants respectfully requests that rejections to claim 45 (and dependent claim 46) be removed, and that claims 45-46 be allowed.

Independent claim 47, is directed to a method for controlled application of energy to a targeted tissue. Claim 47 recites, among other elements, the step of providing a probe with a working end having a resilient surface layer of a variable electrical resistive body. In particular, the probe has at least one interior conductor coupled to a voltage source, and the body provides low resistance electrical current paths at a first temperature. Claim 47 further recites delivering RF energy to said at least one interior conductor thereby causing ohmic heating in said tissue. As the cited art fails to show such a resilient surface layer, claim 47 distinguishes the cited art. Therefore, Applicants respectfully requests that rejections to claim 47 (and dependent claim 48) be removed, and that claims 47-48 be allowed.

Rejections under 35 U.S.C. § 103

Claims 21 and 25 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,107,699 issued to Swanson in combination with U.S. Patent No. 5,836,874 issued to Swanson et al. Claims 8, 21 and 28 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Panesque et al in combination with U.S. Patent No. 6,143,207 to Yamada et al., and U.S. Patent No. 5,603,875 to Giller et al. Such rejections are traversed as follows.

Independent claim 21 is directed to a surgical probe having, among other elements, a body comprising an electrically non-conductive, solid material doped with an electrically conductive doping composition distributed therein to provide variable resistance to the electric current flow therethrough, wherein the body provides a multiplicity of low resistance electrical current paths therethrough at a first temperature. Claim 21 is patently distinguishable from the combination of Swanson. in combination with Swanson et al. because the above claimed elements are absent from any reasonable combination of the cited references.

Page 3 of the Office Action alleges that "Swanson teaches a device such as claimed, but does not teach the use of foam," and that "Swanson et al. teaches a device such as claimed, except for the use of carbon particle." However, no mention is made as to either Swanson or Swanson et al. teaching a body providing variable resistance to electric current flow, nor a multiplicity of low resistance electrical current paths.

The Examiner also asserts that claims 8, 21, and 28 are unpatentable over Panescu et al. in combination with Yamada et al. and Giller et al. because they "teach the use of thermistors." However, none of the above references teach of variable resistance bodies providing low resistance electrical current paths. In addition, no suggestion or motivation has been shown for combining the above references.

Applicants request, if the present rejection is maintained, that the Examiner show or explain where the cited art, or how knowledge of those skilled in the art, teaches or suggest the proposed limitations. Absent any cited teaching or suggestion of a body providing variable resistance to electric current flow, or a multiplicity of low resistance electrical current paths, a

prima facie case of obviousness under 35 U.S.C. §103 has not been established, and as such claim 21, and dependent claims 8, 25 and 28 are allowable.

Claims 45 and 46 were rejected under §103(a) as allegedly being unpatentable over Panescu in combination with Swanson. Page 4 of the Office Action asserts that "Panescu et al. teach a device such as claimed except for the use of DC." However, as already explained above, Panescu is void of any teaching or suggestion of a surgical probe having a body with a variable electrical resistance resistive body. Therefore, the rejection under §103(a) of claim 45, and dependent claim 46, is improper.

Claim 48 was rejected under §103(a) as allegedly being unpatentable over U.S. Patent No. 5,849,011 issued to Jones et al. in combination with U.S. Patent No. 4,930,494 issued to Takehana et al. Such rejection is traversed as follows.

Claim 48 is directed to an electrosurgical probe for delivering energy to tissue comprising a probe with a handle end and a working end, the working end carrying an interior electrical conductor covered with a surface layer of a pressure variable resistor ink. The device disclosed in Takehana et al. is directed to bending an insertion section of an endoscope using pressure-sensitive resistance elements to determine the bend angle of the instrument by detecting the change of resistance of the pressure sensitive elements. See Col. 12, lines 7-20. Therefore, Takehana does not disclose an electrical conductor covered with a surface layer of a pressure variable resistor ink, as disclosed in claim 48. Therefore, neither Takehana et al., nor Jones et al, individually nor in combination, disclose the cited elements of claim 48. Hence, Applicants respectfully request the rejection of claim 48 be removed.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Applicants have submitted a Supplemental Information Disclosure Statement on July 9, 2004, with references from a co-pending related application.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

James M. Heslin
Reg. No. 29,541

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 415-576-0300
JMH:jke
60235508 v1